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(54) **MULTI-FUNCTIONAL CELLULAR SURFACE FOR UNDERWATER VEHICLES**

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(57) **ABSTRACT**

A system of sensors and weapons in the form of individual cells forming a multi-functional cellular skin is provided to cover the outer surface of an underwater vehicle. The cells are engineered to have specific functional capabilities, e.g., acoustic sensing cells, communications cells, munitions cells, control cells and motive cells, and are electromagnetically attached to the vehicle. The functional arrangement of the cells types and the number of layers will be dependent on the desired capabilities and the overall mission of the vehicle. Cells may be deployed from the vehicle individually or in functional groups by decoupling appropriate cells from the vehicle. Once decoupled, motive cells can transport themselves and other cells as necessary, to positions remote from the vehicle. Groups of cells can be deployed to specific locations and arrayed in specific configurations by motive cells, allowing the vehicle to remain in a standoff position.

16 Claims, 3 Drawing Sheets